DEVELOPMENT ADMINISTRATION IN SOUTHEAST ASIA: A COMPARATIVE STUDY OF THE ADMINISTRATION OF RICE PROGRAMS IN INDONESIA, SOUTH KOREA, THE PHILIPPINES, AND THAILAND

Introduction: Purpose and Methodology of the Study

The purpose of this project is to study comparatively in four Southeast Asian countries variables which contribute to or impede the efficacious administration of development programs. To delimit the study a decision was made to concentrate on the administration of programs related to the production of rice. The comparative study is conducted collaboratively by Asian and American scholars in Indonesia, the Republic of Korea, the Philippines, and Thailand. An empirical theory of efficacious development administration is constructed which defines basic terms and concepts, formulates causal propositions which are derived from generalizations about the development process, and relates the administrative system in each country to the levels of political and socio-economic development. The empirical model of efficacious development administration is then tested to infer causal relationships between variables by distinguishing between indirect and direct effects and spurious correlations. Causal model analysis (see Blalock, 1964) is utilized for this purpose and path coefficients are computed to measure changes in the dependent variables produced by changes in the independent variable.

The field of comparative administration has been in a constant state of ferment and flux, usually confident about its promise and prospects but sometimes uncertain about its direction. Descriptive studies of administrative functions and structures are increasingly plentiful and often of profound depth and comprehensive breadth. Case studies, country by country, of successful, as well as unsuccessful, administration of development projects burden the literature. Grand theories and models, elegant in their design, are now available to assist the analysis of the nature and process of development administration and to reveal insights into the interrelations between administration, its structure, functions, and the behavior of its bureaucrats, on one hand, and the society which it serves, the political system of which it is a part, and a myriad of ecological variables on the other hand. Unfortunately, even the best descriptive studies contribute little to comparative understanding if they are not conducted within a rigorous theoretical frame of reference which permits comparison. Yet, there has been a failure to operationalize much of the theory which has enriched the field, either because the theory has been too global and not susceptible to being operationalized or because theorists are reluctant to turn to empirical research of either a quantitative or non-quantitative nature.

A significant trend is that both descriptive and analytical studies are becoming more and more quantitative, although this phenomenon is more pronounced in other kinds of political analysis than comparative administration. The more descriptive, rather than the analytical, types of political studies are often the first to be quantified because the task is easier in descriptive work and because operational models which permit comparative analysis are developed more slowly. Hence, Apter warns (1968, p. 2) there is a danger that "premature" quantification may prolong the descriptive studies in the field, because they are easier and more possible, while preventing its analytical development.

The often vague and post hoc character of attempts at theory construction add another difficulty to the development of verifiable and operational theories. When the language of theory is vague and its predictions either unmentioned or unspecified, theory

MAPPING SENTENCE FOR CAUSAL MODEL OF COMPARATIVE STUDY OF RICE PRODUCTION ADMINISTRATION IN FOUR ASIAN COUNTRIES

The research project is designed to study **administrators** { **Types**: Higher vs. middle mgt. / Line vs. staff / Central vs. field } of rice programs in various Asian countries { **Countries**: Indonesia / Korea / Philippines / Thailand } to determine how their **"reality world"** (a dependent variable) { **"Reality world"**: Knowledge of rice program / Perception of adm. efficacy / Perception of org. change / Problem-solving ability } relates to their **social background** (the independent variable) { **Social background**: Sex / Age / Education / Socio-econ. status / Media exposure / Physical mobility / Group association / Career pattern } and other dependent (or intervening) variables, such as **personal values** { **Personal values**: Personal success values / Time frame / Personal efficacy / Authoritarianism / Cooperativeness / Change orientation / Optimism / Ambition } and **administrative culture** { **Adm. culture & behavior**: Job type / Admin. behavior / Job orientation / Administrative culture: Adaptiveness / Morale / Communications / Information orientation / Public orientation / Intragov'tal cooperation / Legislative relations } using the Blalock causal model, and relating these relationships to each country's objective development characteristics { **Characteristics**: Level of political development / Level of socio-econ. development }

is both difficult to substantiate and difficult to refute. But, even in those instances where the theorist is willing to specify sharply his predictions, the problem of replication looms large. If the study is re-tested on the same clientele, questions of contamination are raised. The time dimension has changed adding another source of unwanted variation in a replication design. If the clientele is changed, one wonders the extent to which possible differences are due to variation in the clientele or variation resulting from the mechanics or ambiguity of the instrument.

We begin our study fully aware of these several problems: the need to bridge the gap between sheer description and untested theory, the need to operationalize theory for which we are capable of gathering data, the danger of premature quantification which may prevent analytical development in the field, and the desirability, even though we are prone to back away from the effort, of testing causal relations as a basis for making social predictions. Our purpose is to attempt to cope with these problems, at least in a limited way.

We view the Blalock system of causal model construction as a noteworthy attempt at bridging the gap between descriptive theory and verifiable analytical theory. The Blalock model not only enables the researcher to specify the relationship between variables, but it enables him to evaluate the probable causal relationship between variables. This procedure is also fraught with difficulties. A long tradition of philosophical argument refuses to acknowledge causation as being susceptible to empirical verification. Even where such admonitions are unheeded, the strict requirements of necessary and sufficient conditions are established for making inferences about causality. Such conditions are untenable in the social sciences, and consequently if one is to speak of causality one must speak only of the probable influence of variables on each other. At the same time, it must be recognized that the causal system pertains only to those variables incorporated into it. The addition of another variable to the system or the violation of recursive (unidirectional) causation could completely change the relationship among the variables and the causal nexus described by a single set of correlation coefficients.

In the natural sciences models are constructed by consciously simplifying reality so that the relationship between certain variables can be observed without the intervention of other known, or unknown, variables, which for the purpose of a given study are excluded. (Later studies may then include those omitted variables.) The statements of natural laws appear to assert fixed causal relationships which hold without exception. In actuality, the real world does not conform to the relationships which are expressed in apparently immutable natural laws. Similarly, the causal models designed and used in the social sciences should be understood as abstractions of probable causality. Also, the number of variables in a social science model of probable causality must be strictly limited to a manageable number just as they are in the natural sciences. Necessarily a number of variables are eliminated in a given study, variables which, if introduced, might modify the probable causal relations under observation. However, in any field of scientific investigation no model, quantitative or conceptual, can presume to identify and incorporate all possible variables.

For the purpose of this comparative study of development administration in four Southeast Asian countries, we are focusing on the administration of one vitally important program which is common to all countries--administration of programs related to the production of rice--and we have chosen to study only four variable clusters: (1) the social background of the administrators of rice programs (viewed as the independent variable), (2) the personal/cultural norms and values of the administrators, (3) the administrative culture of the rice program and the administrative behavior of the respondents on the job, and (4) the perceived efficacy of the administration of the

rice program (all viewed as dependent variables). The interrelationship of these variable clusters will be studied in each of four countries using the same instrument to identify similarities and differences. Also, within and between countries these interrelations will in turn be related to the type of administrator responding to the research instrument (higher vs. middle management, line vs. staff, central office vs. field office) and to certain objective indicators of development (level of socio-economic development and level of political development).

We are fully aware that we are simplifying reality in making these decisions about what to include and what to exclude. Many countries which we would like to include have been omitted because of limited time, money, and energy. Later we intend to expand our coverage. Other programs of development administration should be investigated--social welfare, family planning, community development, industrialization, education, transportation, communications, etc.--but they are beyond our capabilities at the present time. The variables which might have been included are endless: the need for achievement (McClelland, 1961), education (Harbison and Myers, 1964), communications (Hovland, Janis, and Kelly, 1953; Lerner, 1958), religion (Weber, 1904), competence (White, 1959) information (Dorsey, 1962), patterns of organization (Meyer, 1957), supervision (Likert, 1961), structural characteristics of bureaucracy (Hall, 1962), and so forth. Later projects will hopefully incorporate other variables.

Many indicators of modernization might also be related to our findings: civic culture (Almond and Verba, 1963), index of overall modernity (Smith and Inkeles, 1966; Inkeles, 1966), strategies of political development (Shils, 1962), the role of elites (Seligman, 1964), the nature of transitional politics (Pye, 1962), industrialization (Theodorson, 1953), or the ecology of public administration (Riggs, 1961). Again, the inevitable limits of time, money, and energy prevent our attempting the most comprehensive possible study.

Thus, by conscious design this study will be carefully circumscribed. The limits of the present study will hopefully be expanded in future studies to include more countries, more variables of administrative efficacy, and more indicators of modernization. Although the study has been delimited, we seek to avoid the disappointment which Alfred Diamant (1969) recently reported in his review of The Citizen and the Administrator in a Developing Democracy (Eldersveld, Jagannadham, and Barnabas, 1967), a study which has elements of similarity to ours. While complimenting the quality of the authors' work, he criticized the cross-national or cross-cultural vacuum within which the findings are reported and lack of attention to theoretical issues. As a result, the study lacks "genuine hook-ups to ecological data, to attitude studies, and above all, to democratic theory and to 'development' literature" (Diamant, 1968, p. 503).

Our study has been designed collaboratively by Southeast Asia and U.S. scholars and gathers data from four Southeast Asian countries as well as the United States. While some of the data relates to individual attitude characteristics on the micro-level of analysis, we endeavor to set that data in a wider institutional and ecological framework on the macro-level of analysis. We also attempt to relate this study to the existing literature concerning modernization and development and to test research hypotheses which grow out of that literature.

The basic terms and concepts which will be used in this study are set forth in the section that follows. The research hypotheses which grow out of this presentation are presented in the next section. The concluding section describes how the Blalock causal model will be employed to analyze the data which has been gathered to test these research hypotheses.

Theoretical Frame of Reference: Concepts and Definitions

Our primary concern is with the process of administrative development, which is here preliminarily defined as consisting of all those transformations an administrative system undergoes to increase its capacity to achieve the developmental goals which have been authoritatively identified for the system to attain. Administrative development in the newly independent or recently developing countries of the world is a cause of as well as a consequence of other types of social change. To understand how and why administrative development occurs, it is helpful to view the administrative system within a conceptual framework which is capable of accounting for significant changes elsewhere in the social system as well as in the administrative system.

The administrative system of any nation is an integral part of the political system, inseparable from its institutions, processes, and guiding values and norms, except for analytical purposes. It is functionally related to the elements of the political system, just as the political system itself is imbedded in the larger social system of the nation, and it is functionally related to the nonpolitical elements of the society as well.

Modernization

In this study all the complex and interrelated developmental changes newly-independent or recently developing countries of the world are undergoing will be referred to as modernization, whether the changes result from efforts to emulate other countries (i.e., exogenous developmental change) or from efforts which are completely independent of foreign stimuli (i.e., endogenous developmental change), if such independently initiated developmental change is any longer possible in this increasingly interconnected world society. This usage differs with Riggs (1966), who restricts the term modernization to the borrowing and adaptation of institutions and practices from foreign models, although he suggests no term for endogenous change other than development, a term which we prefer to use to apply to certain kinds of changes that take place in societal sub-systems, and he offers no term to comprehend the total process of both exogenous and endogenous change. Our usage here conforms to a usage which is already widely accepted in the literature. (See Finkle and Gable, 1966; Weiner, 1966; Apter, 1965, 1968; Feldman and Hurn, 1966).

Development

Modernization is not viewed as a single process in itself but consists of a variety of developmental changes occurring in the many sub-systems in society, such as the economic sub-system, the political sub-system, the education sub-system, and so forth. Developmental change in each of these sub-systems will be referred to simply as development. Thus, there is economic development, political development, education development, and the like. Modernization is a consequence of all these developmental processes. Administrative development, which is our specific concern, refers to the developmental changes occurring within the administrative sub-system of a modernizing society.

Developmental change is a special kind of social change; not all social change is developmental. Developmental change includes growth (e.g., an increase in GNP within the economy or the number of civil servants), differentiation (e.g., money crops in place of subsistence agriculture, the factory system in place of cottage industry), specialization (e.g., rise of professions, specialized government ministries) and increasingly complex patterns of integration (e.g., functional groups based on economic or political interest). Development in each of the sub-systems has a number of indicators, some of them quantitative, to which we will return (e.g., percentage of popu-

lation in cities, percentage literate, amount of electricity generated, per capita income, inhabitant/physician ratio, etc.)

Developmental change is distinguished from social change in general by being, at least in part, calculated and purposive. Its purpose is to make it possible for society to accommodate new demands by achieving new objectives through new structures performing new functions. An effort is made to increase the capacity of the social system, or particular sub-systems, to manipulate its environment so that elements of the systems are more able to choose among alternative courses those which are most likely to achieve desired ends. (Adapted from Riggs, 1966). The significance of the total modernization process is in its capacity to widen human choice and alternatives so that people can direct the rate and course of events which affect them.

Traditional Society and its Transformation

Developmental changes throughout society, summed up as modernization, eventually result in a new style of life for the individual and his social groups, new especially in how they relate to their environment. In both the actual and cognitive sense, man in traditional society is dominated by the vicissitudes of nature and feels that he has little control over his environment. He lacks confidence and a sense of power in his ability to manipulate either his physical or social environment, an attitude reinforced by experience. He is likely to be born in a village with an ascribed status that determines his occupation, expectations, and relations with other people. His physical and mental horizons are limited. He spends his life in or near the village of his birth and, in many instances, he never travels more than a day's distance from his home. His mental outlook is equally constricted as he remains isolated from new ideas, new technology, and the influences of modernity that may exist but a few hundred miles from his village. The forces of nature which constantly harass him appear overwhelming. Drought, floods, pests, and crop disease are unceasing threats to his farm. Disease, famine, and accidents punish him and his family. With his limited powers these forces are beyond his control and his helplessness breeds a sense of impotence; he finds it dangerous to experiment in the face of all these odds.

This sense of impotence and of danger in the environment induces him to rely on other people for decisions--the elders of the family, village leaders, landlords, and others in positions of authority. In turn, he expects the same submissiveness and dependence from those beneath him as he gives to his superiors. Thus, as a parent, elder, or village leader he may be authoritarian. Impotence, dependence, and anxiety at experimenting are bred into each successive generation. This style of life inhibits the formation of a creative or innovative personality so that life goes on the same generation after generation. The social and political structure remains hierarchical, if not authoritarian, methods of production continue unchanged or are modified only slightly, and the level of income and standard of living remain constant. (See Hagen 1962a, pp. 12-15; Hagen, 1962b; Finkle and Gable, 1966, pp. 119-127).

The convulsive impact of modernization on traditional and transitional society is merely suggested by a number of indicators employed by social scientists to describe this transformation. Compressing and simplifying the process, we may note briefly: Patterns of child rearing begin to change; new personality types challenge and replace the dominant position of traditional personalities; marginal men, creative and innovative personalities appear with greater frequency and assume increasingly major roles in the transitional process. Changes in residence and occupation occur as people move from farm to flat, from field to factory. New social opportunities appear as status and prestige are no longer ascribed. Patterns of group affiliation and conceptions of personal identity undergo change. Daniel Lerner has spoken of these changes in terms

of mobility: "Physical mobility released man from his native soil; social mobility freed man from his native status; psychic mobility liberated man from his native self" (1959, p. 18).

The learning of many new habits and unlearning of many old ones is an excruciatingly slow process that may extend over decades or generations. However, some changes in the process of modernization today may be rapid. Urbanization may occur quickly as masses of people decide to move to the city, even though jobs may not be immediately available. The skills and processes of science and technology may be introduced in a relatively short period of time. New, modern transportation and communications systems may be installed relatively quickly and markets may expand rather rapidly. The concentration of people in cities and new work situations force people into new contacts. Economic, social, and technological developments make mass media communications possible and permit a lightning-like exchange of ideas. The barriers between the little communities begin to fall and regional, and eventually national, communities emerge. Under these circumstances people experience, in Deutsch's term, "social mobilization" (1961). Old habits are uprooted and mobilized persons, participating in intensive communications, are inducted into relatively stable new patterns of group membership, organization, and commitment.

New attitudes often accompany the process of modernization: a disposition to accept new ideas and try new methods; a readiness to express opinions; a time sense that makes men more interested in the present and future than in the past; a better sense of punctuality; a greater concern for planning, organization and efficiency; a tendency to see the world as calculable; and a faith in science and technology (Inkeles, as summarized by Weiner, 1966, p. 4).

Political Development

In the process of modernization, a society must develop a political system which is able to innovate and implement policy which will promote social and economic development (or, at least, not impede it), while controlling and integrating the social forces which are produced. As we have noted, modernization involves social change in which people change their personality and/or their place of residence and occupation and/or their attitudes and/or their loyalties. New demands are imposed on the political system, especially to participate in the political system, and the system either provides for greater participation in ways harmonious with the continued existence of the system, or it alienates people and produces strife and tension. The political system must be able to respond to the new demands, control the possible conflict, and integrate the processes of developmental change.

Thus, during the process of modernization the political system itself undergoes transformation, both in its structure and its functions. In this transformation, the relations between the political system and society are both autonomous and interdependent. Political development is partly independent of economic, social, or other forms of developmental change. But also, it influences and is influenced by social and economic developments. The political system in modernizing society comes to deal with an ever wider range of problems; it becomes the generalized problem solver for the entire society. For example, the political system comes to occupy a dominant role in economic development. However, since political development is a process by which a political system acquires an increased capacity to sustain successfully and continuously new types of goals and demands and creates new types of organization, political development may depend, in turn, upon basic changes in society and the economy. (See Diamant, 1964).

Function and Nature of the Administrative Sub-system

The function of the political system is to make decisions for the polity which are authoritative and binding on all its members. However, if the decisions are not implemented and the goals or purposes of the decisions are not achieved, the decisions are not efficacious. Although some decisions may be made for the sake of the decision itself and not for the purpose of carrying out the intent of the decision, presumably most political decisions are meant to be implemented. The function of the administrative sub-system is to implement political decisions.

With Heaphey and Kronenberg (1966, pp. 6ff), we assume that a distinct functional concept of public administration can be analytically identified so that public administration may be defined as an instrument of the political system. In order that political decisions can be implemented there must be structures whose formal goals are to carry out political decisions, i.e., public policy.

The concept of political decision is crucial to this analysis. A political decision is the result of an act of choosing among available alternatives and this choice lays down for the future a course of action authoritatively allocating values and resources within the polity. The making of that choice is a political act, even though there are social, economic, and administrative aspects of it. Such a political decision may be made by structures which are normally deemed political as well as by administrative structures.

The administrative system has structural and behavioral components. The structural component consists of all those organizations that have as their purpose the implementation of public policy, i.e., the public bureaucracy. For our purpose, the Weberian conception of bureaucracy is acceptable and adequate. The behavioral component consists of actions (motivations, values, overt behavior, interactions) of all those people who work in and through public bureaucracy to accomplish the purposes of public policy.

We accept Waldo's widely used definition of public administration (1955): planned cooperative human effort, possessing a high degree of rationality, which is directed toward the achievement of authoritatively identified goals. Goals may be either official or operative. Official goals are the general purposes of an administrative system as set forth in the constitution, charter, laws, annual reports, public statements by key executives, and other authoritative pronouncements. Operative goals designate the ends sought through the actual operation policies of the administrative system. They refer to what an organization actually is trying to do, regardless of what the official goals may say the aims are. (See Price, 1968, pp. 3-4).

Cooperative human effort requires a structure, or organization. An organization (also called bureaucracy, complex organization, formal organization, or large-scale organization) is the authoritative and habitual (recurrent)pattern of personal interactions in an administrative system. The process of achieving rational cooperation, i.e., getting people to work together in some planned way which is calculated to achieve given goals, requires the exercise of administrative leadership. Administrative leaders at the highest levels in an organization are usually referred to as executives, or higher civil servants, at the middle levels, as managers, or middle managers, and at the lowest levels, as supervisors. Thus, some behavior in an administrative organization is directed toward obtaining and maintaining the cooperation of other persons so that goals are continuously achieved. This behavior may be referred to as administrative. Other behavior is non-administrative, consisting of those scientific, professional, technical, clerical, manual and other activities people engage in which do not require interrelation, coordination, or cooperation with the behavior of others. (See Heaphey

and Kronenberg, p. 9). The man who sweeps the floor is not engaged in administrative behavior, although it is necessary to the administrative system. The person who buys the brooms through the purchasing department or who supervises the sweeper is engaged in administrative behavior.

An administrative system is efficacious (has administrative efficacy) when it is capable of achieving the goals of the system (just as a person has efficacy when he is capable of achieving his goals, or the goals set before him). There are various objective measures, or indicators, of administrative efficacy: productivity (the ratio of output to input), adaptiveness, problem-solving ability, institutionalization, and so forth. A measure of personal efficacy is often morale, i.e., the degree to which individual goals are achieved or motives gratified.

Administrative Development

Our particular interest in the administrative process has to do with administrative development, which should be distinguished from development administration. Development administration is the process of implementing a nation's political decisions when they are directed toward the goals of developmental change in the various subsystems of society--social, economic, educational, and so forth. The administration of the programs related to rice production in the Philippines, South Korea, Thailand, and Indonesia constitutes development administration.

Administrative development is the transformation of the administrative system itself, in both its structure and its functions, and consequently in the behavior of its administrators, to increase the capacity of the administrative system to achieve successfully and continuously the nation's developmental goals. (See also Riggs, 1966). As a society and a polity develop, new demands are placed on the administrative system. New goals are identified; new programs are designed which require an optimum utilization of available resources; new organizations are required, or old structures are reorganized; new roles are created for administrative personnel. The bureaucrats are expected to become innovators and change agents instead of being oriented to traditional and routine functions, like maintaining law and order and collecting revenue. These changes are a part of administrative development. The increased capacity of an administrative system undergoing development is measured by the tests of administrative efficacy.

Summary

To recapitulate briefly this discussion of underlying concepts and definitions: Modernization of newly-independent or recently developing countries consists of all those development changes these nations are experiencing, whether exogenous or endogenous. It is not a single process in itself but consists of a variety of developmental changes occurring in the many sub-systems in society, such as social development, economic development, political development, and administrative development. Developmental changes throughout society, summed up as modernization, eventually result in a new style of life for the people and their social groups, especially as they relate to their environment. Man's capacity to manipulate and control his environment is expanded as he becomes more able to choose among alternative courses those which are most likely to achieve desired ends.

To modernize a society must develop a political system which is able to innovate and implement policy which will promote social and economic development. The transformation of the political system, both in its structure and its functions, by which it acquires an increased capacity to sustain successfully and continuously new goals

and to create new types of organizations is political development. The function of the administrative sub-system is to respond to the new demands placed on it and to implement these new policy goals of social and economic development. Administrative development is the transformation of the administrative system itself to increase its capacity to achieve successfully and continously the nation's developmental goals.

Research Hypotheses

We know something about the socio-economic changes which are associated with economic development. We also know a little about the relationship of social and economic development to political development, i.e., the capacity and stability of the political system and levels of political participation. We need to know more about the factors which contribute to administrative development and what makes an administrative system efficacious in achieving the programmatic goals of a developing society.

Indicators of Socio-economic and Political Development

For example, Russett (1964, p. 293) finds a high correlation among such indicators of economic and social development as the percentage of the population in cities of over 20,000, percentage literate, the proportion of the population enrolled in higher education, the inhabitant-physician ratio, the number of radios per 1,000 of population, and GNP per capita. The relationship between per capita GNP and more explicitly political variables, however, is not so clear. There is a moderate correlation between per capita GNP and the percentage of the population voting, but only very slight ones between per capita GNP and such variables as the relative size of the armed forces or the expenditure of the central government (including social security and public enterprises). Using available data for these indicators, Russett arranges 107 countries into five groups, or stages, as identified by levels of per capita GNP, with the cutting points chosen so as to maximize the internal consistency of these groups. To these groups he attaches the labels, "traditional primitive" societies, "traditional civilizations," "transitional societies,""industrial revolution societies," and "high mass-consumption" societies. Of the four nations in our study, only Thailand falls into the second stage--"traditional civilizations"--while Indonesia, the Republic of Korea, and the Philippines fall into the third stage--"transitional societies." The United States falls into the fifth stage.

The procedure he uses shows the amount of change characteristic of any particular range, and the amount of change to be found at particular levels. Urbanization and GNP are highly correlated. Overall, the number of physicians is most sensitive to GNP per capita and literacy is the least sensitive of the economic variables. Up through stage three, for instance, each doubling of the GNP per capita implies a doubling of the proportion of the population living in cities (and, incidentally, a doubling of the proportion of the population engaged in non-agricultural occupations).

The new city dwellers are often completely uneducated, or sometimes barely literate, except that certain of the countries we are studying depart from expected patterns with respect to enrollments in higher education. Thailand's urbanization rate is low, but its inhabitants per physician ratio is good and the Thai figures for the two educational rates form the top of their ranges. Russet speculates that possibly the economy has stagnated, the GNP is underestimated, or the cultural uniqueness of the country emphasizes high literacy and educational attainment (p. 302).

In stage three, the Philippines and the Republic of Korea stand out. Korea has

the highest literacy percentage (77%) and the Philippines the second highest (75%). The Philippines has the highest number per 100,000 in higher education (976) and Korea, the third highest (397), immediately after second ranked Egypt (399). This figure for the Philippines places it ahead of all countries in stage four--"industrial revolution" societies--except Puerto Rico, and ahead of all "high mass-consumption" societies, except the United States. Russett suggests that the ranking of the Philippines can be explained by the American influence under long American tutelage and of the Republic of Korea by the major revisions of their social and educational systems as a result of post-World War II occupation by the United States (p. 302).

Hagen (1962a) has tested the hypothesis that technical and economic changes can be loosely correlated with the nature of the political structure in the countries of Asia, Africa, and Latin America. He groups forty countries or colonies of Asia and Africa according to whether their political processes were judged authoritarian, semi-competitive, or competitive, and ranked these countries according to their position on an index of economic development derived by averaging eleven separate economic indices (two dealing with welfare, four, communications, two, industrialization, one, urbanization, and two, education). He finds higher degrees of economic modernization are associated with greater competitiveness of political structure (p.2). The Philippines ranks fourth (on a scale of thirty) in economic development and is listed as competitive. Thailand and Indonesia rank fourteen and fifteen in economic development (exactly at the mid-point of the scale) and are listed as semi-competitive. Hagen does not include South Korea in his study.

In a pioneering study which does not include any of the countries we are studying, Lerner (1957) tests hypothesized relationships between indices of urbanization, literacy, communication (media participation), and political participation by use of a four-index correlation matrix. In addition to simple correlations between each pair of indices, multiple correlations were computed using each index in turn as the dependent variable for the whole matrix. He found that the relationship between these four series of independent events is systemic, i.e., the rates of growth in these four sectors of the participant society have in fact "gone together" in most societies studied.

The modernization process, Lerner found, begins when people achieve physical mobility, the movement of people to urban centers. This movement is the first step in the expansion of human communication--conditions are provided for more widespread participation and, furthermore, increases in urbanization tend to be accompanied by increases in the production and availability of communication media. Once the initial conditions are created for media production, continuing urban growth no longer automatically assures equivalent increases in consumption of communication media.

The next phase is the need for literacy, since literacy provides the basic skill required for operation of a media system. Therefore, as a result of physical mobility, and with the help of literacy and the mass media, people achieve psychic mobility. Psychic mobility, Lerner explains, means that more people now command greater skill in imagining themselves as strange persons in strange situations, places, and times than did people in previous times. He characterizes persons who have achieved psychic mobility as mobile personalities who have a capacity for empathy. They have the capacity to see themselves in other persons' situations. This is an indispensable skill for people moving out of traditional settings. The simple villager who moves out of his traditional environment must meet new individuals, recognize new roles, and learn new relationships involving himself. Traditional society had been nonparticipant--people were deployed by kinship into communities isolated from each other and from a center; it developed few needs requiring economic interdependence; people's horizons were limited by their locale; and their decisions involved only other known people in

known situations.

By contrast, not only is modern society industrial, urban, and literate, it is also participant. Modern society is participant in that it functions by consensus--individuals making personal decisions on public issues must concur often enough with other individuals they do not know to make possible a stable common governance. Thus, psychic mobility is required in modern society, where much individual participation must be vicarious. A high proportion of people are expected to "have opinions" on public matters--and as a corollary there is the expectation that the opinions of these people will matter. It is this subtly complicated structure of reciprocal expectation which sustains widespread empathy. Consequently, the result of higher literacy, media participation, and empathy is the increasing availability and use of facilities for participation in all sectors of the social system. An index of this involvement is political participation, which reaches its most developed expression in government by participation.

Lipset (1963) seeks to show the effect of economic development (measured by indicators of wealth, industrialization, education, and urbanization) on national political systems in two areas of the world, the English-speaking and European areas and the Latin-American area, none of which include countries we are studying. He establishes two groupings of national political systems, stable and unstable democracies, and popular and elite based dictatorships. He does not combine the indicators selected to form a single scale of wealth, industrialization, or economic development, nor does he scale the national political systems. He presents the statistical means for the nations in each of the two political groups and the ranges for each indicator.

Although Lipset finds generally higher means for the various indicators used among the stable democracies, the strength of the association between the independent variables that are presumably responsible for the observed difference between the two groups is not explained. Furthermore, the spread in the values on almost every indicator is so extreme that it appears that it would be very difficult to place a single nation in either the democratic or non-democratic category knowing only its score on the indicator. Cutright (1963, p. 254) explains this problem by the failure to develop a scale of "democracy" that could approximate the scale on which all the independent variables are defined and a lack of adequate conceptualization of national political systems.

Cutright attempts to improve on Lipset by developing an index of political development that is operationally defined. His index is based on the concept that a politically developed nation has more complex and specialized national political institutions than a less politically developed nation (p. 255). He measures the degree of political development of seventy-seven countries on this basis and places each nation on a continuum of development. To test the hypothesis that political institutions are not set apart from the rest of a society's social institutions, he assesses statistically the degree of association between educational development, urbanization, communication development, economic growth and labor force characteristics and the measure of political development.

He finds (p. 257) that the communications development index is tightly related to an index of economic development but is a better predictor of political development than is economic development. The communications index reflects the ability and need of national systems to maintain differing types of communication systems depending on the varying degrees of literacy of their population and varying levels of integration of the economic social order.

He then makes a statistical statement of the proportion of the variation around

the mean of the political development index that could be accounted for by covariation with selected independent variables. If the association was reasonably close one might build a prediction equation which would describe for each nation whether its level of political development was commensurate with the values it had on the independent variables in a prediction equation. Indonesia, the Philippines, and the Republic of Korea are all more developed politically than their communications development score would predict, even though most Asian nations have lower than the predicted political development. Indonesia and the Philippines (along with India and Burma) are the only Asian nations whose positive errors of prediction are larger than one standard deviation. A possible explanation for these Asian nations having a more complex political organization than predicted is because these countries all achieved independence after the war was over, whereas countries which have a long run independent status, like Thailand, have lower than predicted political development. The presence of international conflict on the territory of a nation, in other words, may lower or slow its political development because of the disruption of socio-economic life.

A nation which departs markedly from its predicted value may be under some pressure to move toward the predicted score on political (or social) development, Countries which are above their predicted political development may move toward the regression line by increasing their socio-economic development scores (a problematic event) or by decreasing their level of political development (a greater likelihood). Burma and Indonesia, at the time of Cutright's writing, had turned away from complex political organization and had abandoned multi-party politics. The pressures in India (and conceivably the Philippines) are strong toward similar political "backsliding." If rapid economic-social development can occur they may achieve political stability. By contrast, Thailand, which is politically underdeveloped relative to its given level of communications development can increase its level of political development (which it is doing) or decrease its communications development (which is unlikely). (For a study which measures social and political requirements for stability in Latin America, see McCamant and Duff, 1968).

Another effort to relate socio-economic measures to political measures is Russett's study (1964) of the relation of land distribution and land tenure to political stability. Using three measures of inequality of holdings he finds there is in each case a positive relationship to instability, though in two instances the correlation is extremely slight. The highest correlation is between violent deaths and the Gini index. (See Russett, 1964, p. 449). In summary, he says that inequality of land distribution does bear a relation to political stability, but that relationship is not a strong one, and many other factors must be considered in any attempted explanation. The degree to which farm land is rented is not a factor of great explanatory power.

A more complex hypothesis is then posed: extreme inequality of land distribution leads to political instability only in those poor, predominantly agricultural societies where limitation to a small plot of land almost unavoidably condemns one to poverty. In a rich country, the modest income a farmer can produce from even a small holding may satisfy him. Or, if that is not the case, at least in wealthy countries there are, besides agriculture, many alternative sources of wealth. Thus, one might assert that the combination of inequality and a high rate of tenancy would cause instability. While neither by itself would necessarily lead to violence or frequent change of government, the combination almost inevitably would (p. 452).

When he tested these more elaborate hypotheses he found that these refinements improved his explanation rather strikingly. By far the most important variables in the equations for "predicting" instability were first the Gini index and then the percentage of the population in agriculture.

Another possibility is that equality may be related to the stability of a democratic regime, rather than to the political system regardless of type of government. Of the 23 states with the more equal pattern of land distribution, 13 are stable democracies, whereas only three of 24 more unequal countries can be classified as stable democracies. And of these three, each is a fairly rich state where agriculture is no longer the principal source of wealth. Only the Philippines, of the four countries we are studying, is included in this analysis.

HYPOTHESIS: There is a positive correlation between indicators of socio-economic and political development, derived from these and other studies to be identified, and indicators of administrative development in the four countries under study. For example, as a society becomes more urban, industrialized, and educated, persons who become administrators have a social background reflective of these changes which in turn predisposes them to more modern personal and administrative values.

Administrative Development

We intend to explore the relationships and linkages between four variable clusters, each consisting of a number of measures which may be interrelated themselves:

(1) The social background of administrators of programs related to the production of rice (PART IV of questionnaire)

a. Sex (Q. 1)
b. Age (Q. 2)
c. Education (Q. 11, 12, 13, 14, 15)
d. Socio-economic status (Q. 16, 17, 18, 19, 20, 21, 22, 23, 23a, 24)
e. Media exposure (Q. 25, 26, 27)
f. Physical mobility (Q. 9, 10, 31, 32)
g. Group association (Q. 28, 29, 30)
h. Career pattern (Q. 5, 6, 7, 7a, 8)

(2) The personal/cultural norms and values of these administrators (PART III)

a. Personal success values (Q. 1--Guide No. 3)
b. Trust in people (Q. 2b, d. e. f. g. h)
c. Time frame (Q. 2a, c, i, j)
d. Personal efficacy (Q. 2k, l, m, ee, ff, gg, hh, ii, jj, kk, ll, mm, nn, oo, pp, qq, ss, tt)
e. Authoritarianism (Q. 2p, r, s, y, z, bb, cc)
f. Cooperativeness (Q. 2n, o, p, r, s, u, v, aa, bb, dd, ee, rr)
g. Change orientation (Q. 2t, u, w)
h. Optimism (Q. 2t)
i. Ambition (self-orientation) (Q. 2q)

(3) The administrative culture in which they work and their attitudes and behavior in that culture (PART II)

a. Job type (Q. 1a, b, c)
b. Administrative behavior (Q. 2a-j, 3a-e, 4a-d)
c. Job orientation (Q. 1d, e, f, 5a, b, y)
d. Administrative culture:

1. Adaptiveness (Q. 5c, d, e, j, k, l, w, z)
2. Morale (Q. 5a, b, c)
3. Communications (Q. 5f, g)

4. Information orientation (Q. 5m, n, o, x)
5. Public orientation (Q. 5p, q, r, s)
6. Intragovernmental cooperation (Q. 5t, u, v)
7. Legislative relations (Q. 5h, i)

e. Personal efficacy in job situation (Q. 6, 7, 8, 9, 10)

(4) The "reality world" of the administrators of programs related to rice production (PART I)

a. Knowledge of rice production program (Q. 1, 2, 3)
b. Perception of administrative efficacy of rice production program (Q. 9, 10, 11, 12, 13, 14, 15, 16, 17, 18)
c. Perception of organization changes (Q. 5)
d. Problem-solving ability (Q. 4, 6, 7, 8)

Valid and reliable data concerning objective measures of administrative efficacy are sometimes difficult to obtain. In place of objective criteria, desirable though they may be, we find it necessary to study the administrator's "reality world," consisting of the degree of his knowledge about rice programs, his perception of administrative efficacy (using Hadley Cantril's self-anchoring scale), his perception of organizational adaptiveness, and his problem solving ability.

The above variable clusters will be related to the different national setting for each country and to the type of administrator each respondent is.

HYPOTHESES--NATIONAL SETTING:

(1) All countries under study have government-encouraged or -assisted rice production programs.

(2) The programs are distinguishable and identifiable from other administrative programs.

(3) The rice programs are a critical part of the agricultural development plans of all countries.

(4) Differences in the rice programs in each country can be related to:

a. the level of socio-economic development of the country;
b. the level of political development of the country;
c. the social background of its rice administrators;
d. the personal values of its rice administrators;
e. the administrative behavior and culture of the rice programs;
f. the "reality world" of the rice administrators.

HYPOTHESES--TYPE OF ADMINISTRATORS:

(1) Higher civil servants, as compared to middle management, have:

a. more knowledge of the rice production programs;
b. can identify more serious administrative problems and propose more feasible solutions;
c. have a perception that the administration is more efficacious;
d. are older, have more education, a higher socio-economic status, more media exposure, greater physical mobility, more group association, and a more

prestigious, mobile career pattern.
e. have different personal values and experience a different administrative culture.

(2) Line civil servants, as compared to staff personnel, have:

a. more knowledge of the rice production programs;
b. identify programmatic rather than instrumental problems and propose more feasible solutions;
c. have a perception that the administration is more efficacious;
d. are the same age, have more education, a higher socio-economic status, the same media exposure, greater physical mobility, more group association, and a more prestigious, mobile career pattern.
e. have different personal values and experience a different administrative culture.

(3) Central headquarters personnel, as compared to personnel in the field, have:

a. more knowledge of the general objectives of the program but less knowledge of production problems;
b. identify management, rather than technical problems, and propose less feasible solutions to the problems they identify;
c. have a perception that the administration is more efficacious;
d. are older, have more education, a higher socio-economic status, more media exposure, greater physical mobility, more group association, and a more prestigious, mobile career;
e. have different personal values and experience a different administrative culture.

HYPOTHESES--SOCIAL BACKGROUND:

(1) The process of modernization tends to be similar in each Southeast Asian country. Therefore, since societies modernize to the degree that individuals modernize and since the indicators of social background here used relate to degree of individual modernization, the social backgrounds of rice production administrators in each Southeast Asian country will tend to be similar.

(2) Such differences as are identified will relate to the levels of socio-economic and political development and to the types of administrators.

(3) Persons who rank high on measures of education, media exposure, physical mobility, and group association will have personal values which are more "developmentalist" and will have a "reality world" which is more "developmentalist". In these regards, older administrators will be less "developmentalist" and neither socio-economic status and career pattern will be related to degree of being developmental.

HYPOTHESES--"REALITY WORLDS":

(1) Where there is a congruance of "reality worlds" among administrators of rice programs in a given country, the administrative will be more efficacious.

(2) A person who has more knowledge of rice programs will perceive the programs to be more efficacious and will be able to propose more solutions to problems.

(3) Knowledge of rice programs will be related to his reference group associations,

career pattern, and physical mobility.

(4) A person who perceives the programs to be more efficacious will have more developmentalist personal values.

(5) A person who is more developmentalist will propose more instrumental solutions to identified problems, will see central and local governments as partners in developing the program, but will see local government as the level which should be responsible for implementing action.

(6) Persons who perceive programs to be more efficacious will also identify more organizational changes.

These hypotheses are suggestive of the many hypotheses which must and will be identified as the project proceeds. During the process of coding, many more will be specified.

Causal Model Building: A Methodological Tool

Causality

The philosophic question of the nature of causation has never been satisfactorily resolved. The modern controversy over causality is rooted in empiricist criticism. Empiricists hold that causation is not inherent in things themselves but results from our experience with, and knowledge of, things. The impelling, or causing, force, Hume insisted, is not empirically verifiable. All one can observe is the association between the experience called cause and the experience called event. Hume's analysis was based on his philosophic belief that discourses concerning nature and society must be related to empirical events.

Whether causation is something limited to the empirical experience, as Locke, Berkeley, Kant, and Hume argued, or is something that is an objective form of interdependence, a category of determination and connection, as the philosopher of science, Mario Bunge (1963), asserts, may well be irrelevant to our study. Certainly, conjunction, even constant conjunction, is not causation. Night follows day but day does not cause night. Spring follows winter but is not produced by it. These examples seem to portray the obvious. However, the same logic can be applied to more demanding questions.

Take the famous equation: $E=mc^2$. "E" stands for energy, "m" stands for mass, and "c" represents the velocity of light in a vacuum. The equation expresses a connection among properties of a physical object. In fact, the numerical value of one of the properties is determined by the value of the related properties. But, as Mario Bunge, points out "when used in this way, the word 'determination' does not convey the activity and productivity inherent in causation" (1963, p. 10). Mass is not a physical agent but a quality of a physical agent and has no productive virtue.

If causation possesses its own reality and if causal laws are beyond empirical verification, how do scientists deal with the elusive concept of causation? Blalock (1964) admits that causal thinking is a theoretical activity and that causal laws can never be demonstrated empirically. Theory utilizes such concepts as causes, forces, systems, and properties while operational language avoids such terms and concepts. To bridge the language gap one must view causal thinking at the operational level as a heuristic device. Like Phillip Frank (1961), we will view causal laws as essentially working assumptions, or tools, that enable us to deal more parsimoniously with our research rather than as verifiable statements about reality.

One of the primary assumptions about the use of causal linkages at the operation level is that we can isolate a set of variables to form a working system of causal connections. We recognize that other variables, if and when they are included in our working causal system, could alter the relationships identified. In making the decision to simplify the system by limiting the number of variables, we face a fundamental dilemma that confronts anyone who works with models. Models, by their very nature, must be simple enough to deal with the complexity of the real world but realistic enough to give meaningful insight into the reality they oversimplify.

These philosophic problems concerning the nature of causality must be dealt with not only in nonexperimental design but also in experimental design. The advantage of experimental design in studying the relations between variables is that through randomization--the assignment of individuals to different treatments on a random basis--the effects of other variables can be controlled. Consequently, observed changes in the dependent

variable may be attributed to changes and manipulations of the independent variable. Even the experimental design, however, is not without its problems. Controls introduced by randomization are introduced on a probability basis. The random assignment of subjects totreatments implies it is improbable, although still possible, that there will be systematic changes in the dependent variable resulting from uncontrolled variables. Moreover, the experimental design itself may produce contamination that is not removed by randomization. The now famous bank wiring room experiment of the Hawthorne plant studies is a case in point.

In addition to the ability to assign subjects to treatment groups on the basis of randomization, the research using an experimental design is able to maintain control over another vital factor--temporal sequence of occurrences. In nonexperimental design the research must often assume the temporal sequence of relationships between variables. It is true that education generally precedes occupation. But, what is the temporal sequence between partisan orientation and exposure to the mass media? In nonexperimental research, the temporal sequence of events, a crucial component for determining causal relationships, is often no more than a mere assumption.

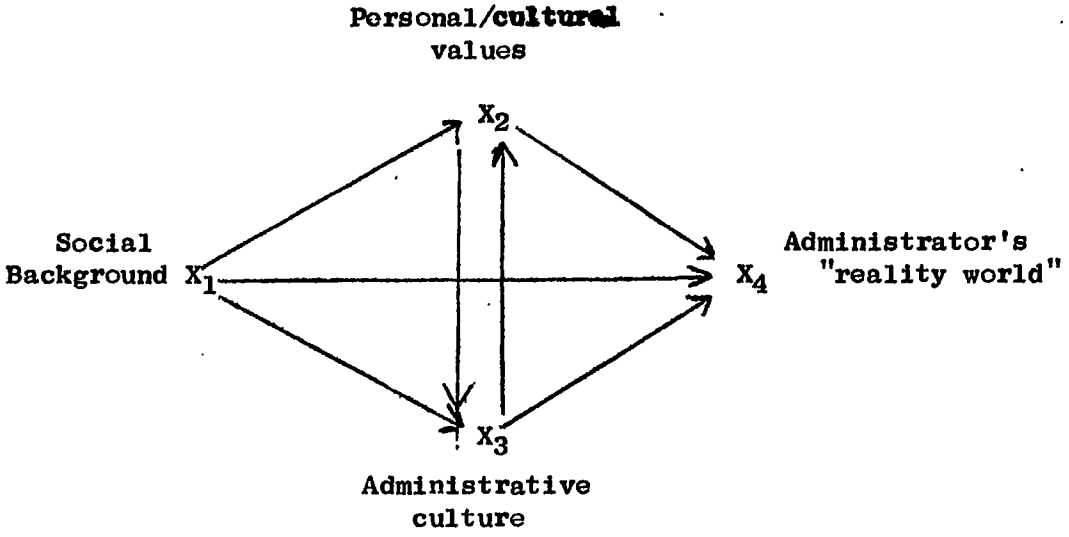
Unfortunately, random sampling is often assumed to be a surrogate for experimental randomization. Random sampling, strictly speaking, is not a means of control. It is a selection device that allows for the equal and independent probability of all elements in the universe being represented in the sample. The primary function it performs is to enable one to make statistically determined inferences about the universe from the nature of the sample. In the sense that random sampling reduces systematic bias, it is a form of control, but it does not serve the same function of control that randomization does. In sample survey designs, this function is performed by statistical control.

In determining causal relationships, statistical control is far inferior to control by randomization. Randomization controls a large variety of factors through one process, but in statistical control each of the factors to be controlled must be specified. Since it is impossible to specify a large number of variables for control and to incorporate them into a causal model, since control variables become part of the model, the researcher making causal inferences from survey design faces far greater problems than does the researcher using experimental design. The survey researcher must not only contend with the philosophical problems of causality, but he must also concern himself with a controlling procedure that is less efficient.

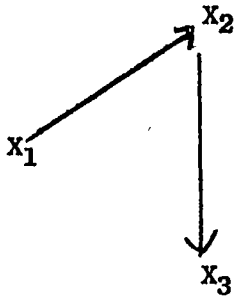
These caveats should be kept in mind throughout our discussion that follows. There are also some additional considerations that should be made explicit: (1) The definition of independent and dependent variables in our model possesses an element of arbitrariness, as do all such delineations in nonexperimental design. (2) The model assumes that there is no variable outside the system that is related both to the primary independent variable and primary dependent variable in such a manner that the basic relationship between these variables is spurious. (3) The model assumes that there is no correlation between errors in the dependent variable and errors in the independent variable. The presence of such correlated bias would obviously invalidate the model. (4) Statistical procedures will not always determine whether a control variable that reduces the basic relationship of two variables to zero is an intervening agent or a factor causing a spurious relationship. Substantive assessment of the variables is often necessary to determine the nature of such a control variable. (5) The model deals with recursive, unidirectional, causal systems. It can accommodate a nonrecursive structure between two variables but the basic flow of events through the model must be recursive.

The Causal Model

With these thoughts firmly in mind, let us proceed to analyze in hypothetical terms our model of administrative development according to the procedures of causal inference. Our model of four variable clusters is structured as follows:

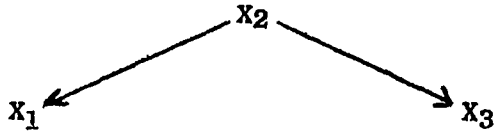


To begin, assume we hypothesize there is no direct relationship between background factors and administrative culture. There is an observed relationship, but we argue that the observed relationship is actually the result of the intervention of personal/cultural values. Personal/cultural values are a function of background factors and these, in turn, affect the administrative culture but the administrative culture is not affected by background factors directly. In other words, we would have a model with an empty space between X_1 and X_3. The empty space signifies that the relationship between X_1 and X_3 is indirect.



Although the question pertaining to the nature of the relationship appears to be a very complex one, statistically speaking it is quite simple. For, if X_2 is an intervening variable in the relationship between X_1 and X_3, or if X_2 is a spurious factor which causes both X_1 and X_3, then if we control for the effects of X_2 the relationship between X_1 and X_3 would be zero. We can illustrate the two relationships under which this would occur diagramatically as follows:

Where X_2 is an intervening variable.



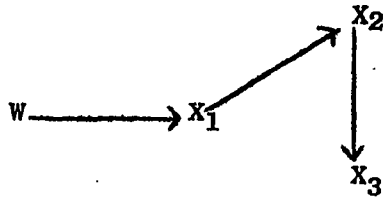
Where X_2 is causing a spurious relationship between X_1 and X_3.

Mathematically both these relationships are identical, although it should be obvious that substantively this is not true. What we are saying in both cases is that if we control the effects of X_2 the relationship between X_1 and X_3 should become zero (plus or minus an error term).

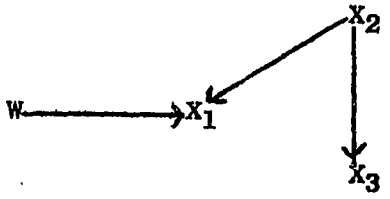
We can express the mathematical relationship in yet another way. If holding constant X_2 causes the original relationship between X_1 and X_3 to equal zero, then of course, $r\ X_1\ X_2 \times r\ X_2\ X_3 = r\ X_1\ X_3$.

Our procedure is as follows: On the basis of common sense we establish that certain correlations in our model should reduce to zero when certain variables are controlled. We test the model against these predictions. If the model holds, it may well be representative of the relationships between the variables in the universe. If it does not, we can eliminate it as a false model. As in the case of the establishment of theories, we never prove models correct; we simply eliminate false ones.

As we have noted, when the test variable reduces to zero, we still do not know if the test variable is a spurious agent or an intervening agent. Obviously, such information is very important, and sometimes attainable. What is required is to find a variable W such that W is a cause of X_1 but not of X_2. This, then, gives us two models for testing. If X_2 is intervening, we have the model



but if X_2 is a spurious agent we have the model



The mathematical prediction for the first model is

$$rWX_2 = rWX_1 \quad r\ X_1\ X_2$$

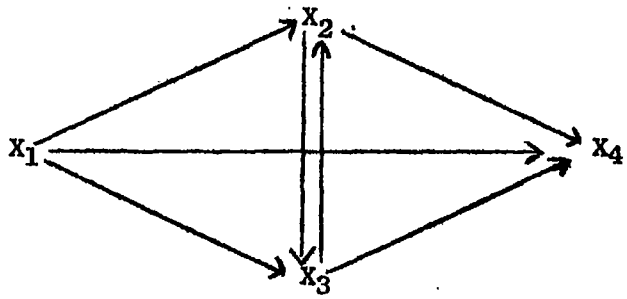
The mathematical prediction for the second model is

$$rWX_2 = 0.$$

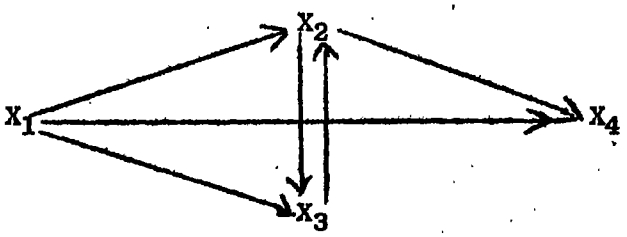
(See Blalock, 1964, p. 76). Of course, this problem can often be answered on purely substantive grounds.

Returning to the model of administrative development outlined above, our use of the Blalock method will enable us to determine for different variable clusters the flow of relationships between background factors (the major independent variable) and the administrator's "reality world" (the major dependent variable). We noted in our outline of variables that these designations are actually rubrics under which many variables exist. Attempts will be made to form indices and scales from these variables. We must remain aware of the fact that different variables and different clusters of variables will undoubtedly produce different causal flows between the major independent and dependent variables. We also note that the relationship between X_2 (personal/cultural values) and X_3 (administrative culture) is not necessarily recursive and consequently departs slightly from the restrictions of the model as advanced by Blalock.

Let us pursue some of the different possible models and their implications for administrative development. We are of course interested in comprehending what predispositions lead to the development of an efficacious administrative reality world--an administrative reality world congruent with the prerequisites for administrative development. Many of the hypotheses outlined earlier indicate that we have some inkling as to what produces such views and behavior. However, we wish to go beyond the stage of bivariate relationships and explore the patterns that lead to the attainment of such views and behavior. As a result, such questions as the influence of background factors on the administrator's reality world controlling for both personal/cultural values and administrative culture are of prime interest. If such a relationship persists in the face of controls, it says a great deal about the importance of certain types of recruitment for the efficacy of an administrative system.

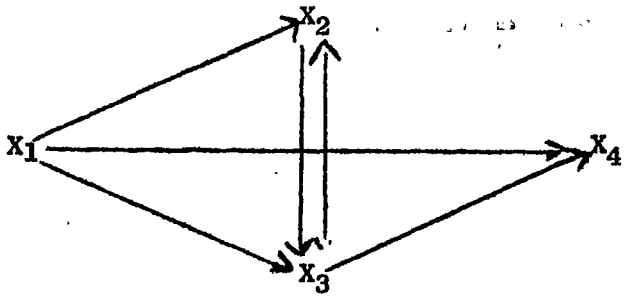


Another model might demonstrate that it is the combination of personal/cultural values that most affects the administrator's reality world, and that the administrative culture is overridden by these individual values. This situation would be represented in the following model:



This model informs us that either personal/cultural values are so strong that they have a greater effect on an administrator's reality world than the administrative culture, or that the administrative culture itself is exceedingly peripheral to his reality world. If this model held, we would wish to analyze the content of administrative culture and determine the extent to which it is congruent or incongruent with personal and cultural values. We would also wish to determine whether or not the effects observed are the result of a large degree of conflict between personal values and the administrative culture in which the individual is immersed. The extent to which social friendships are formed as a result of contact in the administrative culture would also be probed. Our suspicion under the above circumstances would be that such relationships do not frequently occur.

We might also obtain a model indicating an opposite type of relationship.



In this case, there is no direct link between X_2 (the personal/cultural values) and X_4 (the administrator's reality world), except through the administrative culture. If this model were to hold it would be a profound commentary on the ability of the administrative culture to override the anticipated relationship between personal values and the administrator's reality world. Such an observation would lead us to pursue the same kind of analysis as for the previous model but with an obvious difference in emphasis and interpretation.

We have only sketched a few of the conceivable models that might result from the analysis of our data. Hopefully, this outline will convey some impression of how our instrument and the general theoretical scheme relate to each other. While we have emphasized the four variable models and the interrelationships between the data, we have not sought to do this at the exclusion of other modes of analysis. Our study of the causal flow of relations is, as with all empirical models of causality, a heuristic device that better enables us to comprehend the probable nature of the associations between variables. The hypotheses outlined earlier in this paper certainly point to sub-components of analysis that should prove highly interesting but do not necessarily lend themselves to incorporation in the type of causal nexus herein outlined. The causal model is an attempt at unifying what otherwise might appear to be a diverse and unrelated set of empirical observations.

As a final note, we should like to comment on the generality of the causal model we are attempting to proscribe. Most social science research attempts to make generalizations about specific populations. Probability sampling and concerns of statistical inference delineate the requirements of making inferences from sample observations to populations. Often, we criticize studies for shattering the parameters of their universe and making inferential leaps in excess of the population which they are studying. Nonetheless some argue that the real goals of social science are statements of general laws and not merely more accurate depictions of current history. All research is limited by the uni-

verse of inquiry; but, in some sense, one must be willing to attempt to transcend that universe.

Much of our thinking about the relationship between variables has been a result of the emphasis on the strength of the relationship. Strength of relationship is measured by correlation coefficients. The correlation coefficient squared measures the amount of variance in one variable explained by another. The correlation coefficient, being a symmetric measure rather than an asymmetric measure, is a function of the variance in both variables.

In working through causal models, one generally works with the correlation coefficients, despite the fact that being a symmetric measure, it is really not well adapted to causation, which is an asymmetric relationship. The reason for this procedure is if b YX.W=0 so will rYX.W and generally speaking in assessing causal relationships we are interested in viewing the effect of a relationship when a variable is held constant. Hence, when rYX.W and bYX.W are expected to equal 0, either correlation or regression coefficients are appropriate. Our framework of analysis emphasizes comparison. We are not interested simply in the way in which models of administrative behavior operate in different countries but in making comparisons of variable relationships across countries. In different populations the variances across variables will undoubtedly differ. In some of these instances the variance might be a result of differing cultural cues directing the distribution of responses along a dimension with fixed objective, but not subjective, end points from culture to culture. As a result, the correlation coefficients, subject to fluctuations in variance, will differ. Ostensibly the relationships will be different, but the correlation coefficient is not a best means of making comparisons. For comparisons must be made with an instrument that is unresponsive to variance, especially when the variance is suspected, to some degree at least, to be a result of cultural response.

In this regard, we are more in accord with the emphasis on finding general laws unhampered by observations on specific populations, for to make comparisons one must have a measure that is indeed comparable over differing universes and undelineated by any specific universe or, in this instance, specific set of variances. Thus, in the cross national setting of comparison, one wishes to talk about comparisons of the form of the relationship and not comparisons of the strength of the relationship. In other words, one wishes to compare regression coefficients and not correlation coefficients.

A hypothetical example might clarify this issue. Assume that in Indonesia the correlation between education and administrative efficacy is +.23 while in the Philippines the correlation over the same variables is +.67. Further assessment of the data illustrates that in the Philippines there is a large number of college educated individuals in the rice production program, as well as a large number of elementary school individuals in the program, thus providing quite a sizable amount of variation in the independent variable. In Indonesia the number of highly educated individuals is sharply curtailed and the variance is reduced. If we were to stop here, we might suggest that while the direction of the relationship is the same, the strength of the relationship and the ensuing variance in the dependent variable is markedly different. However, if we computed slopes rather than correlation coefficients and consequently established a measure less sensitive to the underlying distribution or variance, we might observe that the form of the relationship is very similar. We might observe, for example, that for every four years of education there is one score increment in efficacy in both situations. The correlation coefficient subjected as it is to differences in variance would have led us to conclude that the basic relationship was indeed different when the slope might well indicate otherwise.

For purposes of comparative analysis the slope is a far better measure than the correlation coefficient. The slope does, however, suffer from certain difficulties of norming and interpretation. The correlation coefficient norms nicely between -1 and +1 but no such parameters exist for the slope. The correlation coefficient can be interpreted in terms of variance explained while the regression coefficient must be interpreted in terms of unit change in the dependent variable for unit change in the independent variable. Nonetheless, for research such as this, where a prime consideration is making comparisons across different populations, it appears the computation of regression coefficients is far more desirable than computation of correlation coefficients with restricted norming parameters but subject to fluctuations because of increased variance.

FOOTNOTES

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